

THE MINERAL INDUSTRY OF

EGYPT

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Mineral and mineral-related industries continued to be a vital segment of the Egyptian economy. The petroleum and natural gas industries accounted for approximately 15% of the gross domestic product (GDP), which was \$76.95 billion in 1998; other extractive mineral industries accounted for more than 1% of the GDP. The decline in oil prices in 1998 seriously reduced revenues and resulted in a drop of Egypt's current account deficit to a deficit of \$2.12 billion in fiscal year 1997-98 ending June 30, 1998, from a surplus of \$550 million in fiscal year 1996-97 (Arab Petroleum Research Center, 1999, p. 76).

The Suez Canal was Egypt's third largest foreign exchange earner after tourism and hydrocarbon exports. Although transit fees were not increased in 1998 to encourage further usage, revenues, however, declined to \$1.75 billion in 1998 compared with \$1.80 billion in 1997. Revenues from the Suez-Mediterranean (Sumed) oil pipeline also declined to \$76 million in fiscal year 1997-98 from \$82 million for fiscal year 1996-97 (Arab Petroleum Research Center, 1999, p. 112).

The Mining and Petroleum Code Law No. 66 of 1953 and the Mining Code Laws No. 86 and No. 151 of 1956 are the bases of minerals legislation and for mineral exploration and exploitation in Egypt. Laws No. 43 of 1979 and No. 50 of 1981 provide the governorates and local councils with the power to administer quarries in their particular districts. Ministerial Decree No. 8 of 1990 was designed to assist the private sector in obtaining the required permits for mining.

Law No. 4 of 1994, the unified environmental legislation, empowers the Egyptian Environmental Affairs Agency to enforce environmental regulations. The law also provides that new mining or quarrying projects will require an environmental impact assessment.

The People's Assembly passed a law in 1998 allowing for partial privatization in the electricity networks. The Egyptian Electricity Authority is to offer 20% of regional generation and distribution works to private investors. The nation's total power was 15,400 megawatts (MW) at the close of 1998 with the commissioning of the second 660-MW unit of the Kureimat power station. According to the Ministry of Electricity, capacity was forecast to attain 24,000 MW by 2006 (Arab Petroleum Research Center, 1999, p. 104).

In 1998, oil and gas continued to be the dominant mineral sector. A variety of minerals was produced from the more than 600 mines and quarries. Among the nonfuel minerals produced, phosphate rock and iron ore remained the most important in terms of value. Most other mining activity was on a rather limited scale. (See table 1.)

In fiscal year, 1997-98, exports of all commodities totaled \$5.33 billion. Crude petroleum and refined products (mostly fuel oil, naphtha, and jet fuel) were Egypt's leading exports. The value of crude oil exports for calendar year 1998 was \$1.2 billion—less than one-half the \$2.5 billion realized in 1997. Nearly 30%, or about 95 million barrels (Mbbbl), of the nation's crude oil output was available for export. Egypt exported six grades of crude, three of which, Suez Blend, Bas al-Bihar, and Zeit Bay, were rated 33° API; Belayim and Ras Budran were rated 26° API; and Ras Gharib, 24° API. In 1998, nearly one-half the total crude oil exports was absorbed by Asia (Arab Petroleum Research Center, 1999, p. 76). In 1998, the United States imported 4.2 Mbbbl of Egyptian crude oil (Energy Information Administration, 1999).

Most mining and mineral processing in Egypt was carried out by Government-owned mining companies. (See table 2.) Privatization had not progressed as rapidly as was originally planned. After several postponements, Egypt's state-run Holding Co. for Metallurgical Industries offered a total of 20% equity in its subsidiary Aluminium Co. of Egypt (Egyptalum), the nation's sole aluminum producer, to employees (10%) and private and institutional investors (10%) in February 1998 at \$22 per share. The Government retained 80% equity (Mining Journal, 1998).

Centamin NL of Australia was delineating the ore body at the Sukkari gold deposit southeast of Cairo on the Red Sea Coast. After completing 12,600 meters (m) of diamond drilling in the Amun and the Ra zones, Centamin reported that 311 metric tons (t) of gold may lie within the concession. The Ministry reported that production from the mine was expected to be more than 3 t in 1999 (Journal of Commerce, 1998).

Egyptian iron ore was mined in El Gedida area of El Bahariya Oasis in the Western Desert. The nearly 3 million metric tons per year (Mt/yr) produced from this deposit was destined for the Egyptian Iron and Steel Co., Hadisob's Helwan Iron and Steel Works near Cairo; this satisfied about three-quarters of Egypt's demand. About 1 Mt/yr was imported, mostly from Russia. The Egyptian Geological Survey & Mining Authority identified oolitic hematite iron ore deposits in the Eastern Desert about 85 kilometers (km) southeast of Aswan. A consortium, the Aswan Company for Development and Mining, proposed to develop the 300-million-metric-ton (Mt) iron ore deposit (Middle East Economic Digest, 1998c; Monitor, April 7, 1998, Egypt plans iron firm, accessed December 2, 1998, at URL <http://www.africanews.com/monitor/freeissues/07Apr98/business.html>).

¹Deceased.

Egypt had four nitrogenous fertilizer complexes, the largest of which was in Abu Qir; the others were in Kima, Suez, and Talkha. Abu Qir Fertilizer & Chemical Industries Co. brought a third plant on-stream at the end of 1998. It had a capacity of 330,000 metric tons per year (t/yr) of ammonia and 600,000 t/yr of urea, boosting the company's total capacity to more than 1 Mt/yr of ammonia, 1.1 Mt/yr of urea, 600,000 t/yr of nitric acid, and 760 t/yr of ammonium nitrate. The nation's three other fertilizer complexes produced phosphate-based fertilizers. Phosphate mined in Abou Tartur yielded 2.2 Mt/yr of phosphate concentrates.

Natural gas has grown in importance to the economy in recent years and is expected to accelerate as a result of the development of numerous nonassociated gasfields. In 1998, the Western Desert supplied about 30% of Egypt's total natural gas production averaging 400 million cubic meters per day (Mm³/d). At yearend, the Obayed Field came on-stream, producing about 10 Mm³/d. Other large natural gas producers were the Abu Madi and the Abu Qir/Naf Fields, the Nile Delta region, and the Gulf of Suez associated gas-gathering network.

In 1998, crude oil production declined again, and domestic consumption rose by 9.4% to 172 million barrels per year (Mbb/yr). The Gulf of Suez remained the largest producing region, which accounted for 72% of total oil production. The second largest producing region was the Western Desert, which accounted for 16% of production [130,000 barrels per day (bbl/d)]. Production from the Sinai accounted for 5.8%, and the Eastern Desert, 5.3% (Arab Petroleum Research Center, 1999, p. 87-88).

Hydrocarbon exploration activity remained at a high level. Offshore exploration was conducted by Amoco Corp.; Apache Corp.; British Gas plc; Canadian Occidental Petroleum Ltd.; Coplex Resources N.L.; Forum Oil & Gas International; Egyptian Oil Co.; Kuwait Foreign Petroleum Exploration Co.; Marathon Co.; Petrobel, a joint venture of the Egyptian Government and International Egyptian Oil Co. (IEOC); the Repsol Group; and the Royal Dutch/Shell Group. Exploration onshore was conducted by Apache; Epedeco; Gharib Oil Fields Co.; HBS; IEOC, a subsidiary of AGIP SpA.; National Exploration Co.; Pennzoil Co.; Repsol; Seagull Energy Corp.; Shell; and Sipetco. Nile Exploration of the United States acquired a 25% working interest in Block G of the Central Sinai Concession, which consisted of 1.84 million hectares (4.5 million acres) on the Sinai Peninsula bordering the eastern bank of the Gulf of Suez (GHP Exploration Corp., 1998, GHP Exploration enters Egyptian concession, accessed on February 9, 1998, at http://biz.yahoo.com/bw/980209/ghp_explor_1.html).

The Egyptian General Petroleum Corp. invited bids for nine oil and gas exploration blocks—three in the Mediterranean, five in the Gulf of Suez, and one in the Eastern Desert. The largest block was El-Arish offshore, covering 2,120 square kilometers off the North Sinai coast. The other Mediterranean blocks were North Bardavil, northeast of Port Said, and North Brullu, northeast of Rosetta (Middle East Economic Digest, 1998b).

In early 1998, Apache announced a new oil discovery in Alamein West containing recoverable unrisks reserves of 230

Mbb. The discovery's uppermost zone where perforations were between 2,694 and 2,697 m in the Dahab Formation yielded 38° API crude oil (Apache Corp., 1998, Apache's first well on Egypt's W. Mediterranean Concession discovers oil, accessed March 16, 1998, at http://biz.yahoo.com/prnews/98316/tx_apache_1.html).

The growth in natural gas production prompted downstream industries, such as petrochemicals and fertilizers, to embark on expansion programs. Egyptian Petrochemicals Co. was expanding its Ameriya complex through the addition of a 300,000-t/yr ethylene cracker, a 250,000-t/yr low-density polyethylene plant, a 150,000-t/yr high-density polyethylene unit, and a 10,000-t/yr butene-1 unit. The new facilities were scheduled for completion in 2001 (Arab Petroleum Research Center, 1999, p. 109).

Private sector expansion reflected confidence in the country's long-term stability and freedom from the fear of nationalization. The budget for fiscal year 1998-99 will maintain the tight fiscal policy of recent years. The Government has set a target for GDP to reach \$79.6 billion by the end of the fiscal year. An estimated 71% will be accounted for by the private sector. The main investment sectors will include industry at \$4.3 billion, petroleum at \$1.6 billion, and electricity at \$0.9 billion (Middle East Economic Digest, 1998a). Net earnings from oil exports declined because of a further drop in output, higher consumption, and the increased cost of petroleum products imports.

Egypt's six refineries produced a disproportionately high volume of fuel oil, which accounted for almost 50% of total refinery output. New refining projects were directed toward increasing production of lighter products and decreasing the need for imports. Among these was the Middle East Oil Refinery, a joint venture with Israel. The export refinery, under construction in Alexandria, was scheduled for completion in 1999 and will be the first refinery in the Middle East to comply with the European Union environmental standards. It will process about 10 Mbb/yr of Ras Gharib crude oil (24° API gravity) and about 25 Mbb/yr of imported crude oil. The refinery will include a 34,000-bbl/d hydrocracker geared to produce light products and a 33,000-bbl/d naphtha-processing unit.

Egypt's crude petroleum reserves were 3.5 billion barrels. Egypt's natural gas reserves were 1.02 trillion cubic meters and included recent new discoveries in the Nile Delta and the eastern Mediterranean Sea (Arab Petroleum Research Center, 1999, p. 75).

Within Egypt, railways totaled 5,110 km; roadways exceeded 51,925 km; and crude oil pipelines, 1,171 km. Commerce transiting the 193.5-km-long Suez Canal was critical to the Egyptian economy; further enlargement of the canal was completed in May 1998. The maximum size of transiting vessels, however, increased only marginally. The canal remained inaccessible to tankers of very large crude carrier and ultralarge crude carrier class except for transiting in ballast. Traffic in the Suez Canal continued to decline to 14,430 transits in 1997 from 14,731 transits in 1996. The 320-km-long Sumed pipeline complements the Suez Canal by linking Ain al-Sokhna on the Gulf of Suez to Sidi Krir on the

Mediterranean coast. Large tankers were able to discharge all or part of their cargo into the pipeline, to transit the canal in ballast or partially laden, and to reload at the Sumed's northern terminal at Sidi Krir. In 1998, Saudi Arabia continued to be the pipeline's largest user, accounting for 60% of the crude oil carried through the pipeline (Arab Petroleum Research Center, 1999, p. 107).

The country was suffering from high levels of unemployment, and foreign investment and private sector development will be required if further progress is to be made. Following the structural reforms put forth by the International Monetary Fund, the Egyptian economy has become more market oriented and less centralized. The program for 1998 included measures to stimulate the development of the private sector, tariff reductions, and ending import restrictions. The allowance of 100% cost recovery on mineral-resource concession agreements will undoubtedly favor future foreign investment. Although natural gas will be Egypt's main energy and revenue source in the future, development is time and capital intensive. Egypt planned to press ahead with rapid expansion of the natural gas industry. Oil companies were courting new exploration concessions, and the majority of wells drilled to date yielded oil or gas.

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Major Sources of Information

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TABLE 1
EGYPT: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998 e/	
METALS						
Aluminum metal	188,464	180,300	179,200	178,200	230,000	
Copper, refined, secondary	4,300	4,400	4,600	4,600 e/	4,600	
Iron and steel:						
Iron ore and concentrate	thousand tons	3,870	2,043	2,429	2,744 r/	3,001 2/
Metal:						
Pig iron	do.	1,148	1,062	1,100	1,000 e/	1,000
Ferrous alloys: e/						
Ferrosilicon		44,000 2/	44,000	44,000	44,000	44,000
Ferromanganese		35,000	35,000	35,000	35,000	35,000
Direct reduced iron	thousand tons	774	850	830	1,190	1,200
Steel, crude	do.	2,622	2,642	2,618	2,717	2,800
Manganese		15,000 e/	1,207	15,000 e/	10,000	9,500
Titanium, ilmenite		--	57,000	124,000	125,000 e/	125,000
INDUSTRIAL MINERALS						
Asbestos		514	427	1,836	1,836 r/	1,900
Barite		419	500	---	---	---
Cement, hydraulic	thousand tons	17,000	17,665	18,000 e/	18,100 r/	19,203 2/
Clays:						
Bentonite		2,379	1,930	1,100 r/	1,136 r/	1,545 2/
Fire clay e/		420,000	420,000	350,000 r/	331,265 r/ 2/	277,059 2/
Kaolin		180,000	293,381	258,725	258,869 r/	285,497 2/
Feldspar, crude		39,745	75,049	53,783	57,335 r/	325,654 2/
Fluorspar		514	551	700	775 r/	140 2/
Gypsum and anhydrite, crude	thousand tons	1,481	2,032	2,000	2,423 r/	1,338 2/
Lime e/		750,000	750,000	750,000	800,000	800,000
Nitrogen:						
Ammonia, N content	thousand tons	1,021	1,096	1,126	1,061	1,060
Urea, N content	do.	420	480	489	445	445
Phosphate:						
Phosphate rock	do.	632	765	808	900 e/	1,058 2/
P ₂ O ₅ content	do.	178	207	222	240	320 2/
Salt	do.	1,008	1,990	1,530	2,024 r/	2,387
Sodium compounds:						
Soda ash e/		50,000 2/	50,000	50,000	50,000	50,000
Sodium sulfate	thousand tons	2,000 r/	2,000 r/	2,000 r/	2,118 r/	2,498 2/
Stone, sand and gravel: e/						
Basalt	thousand cubic meters	600	600	600	883 r/ 2/	241 2/
Dolomite	thousand tons	1,000	1,000	1,000	1,324 r/ 2/	3,444 2/
Granite, dimension	cubic meters	13,000	13,000	20,000 r/	24,958 r/ 2/	35,817 2/
Gravel	thousand cubic meters	7,200	7,200	10,500	12,033 r/ 2/	11,463 2/
Limestone and other calcareous, n.e.s.	do.	18,000	18,000	18,300	23,559 r/ 2/	25,618 2/
Marble blocks (including alabaster)	cubic meters	16,000	45,000	80,000 r/	127,767 r/ 2/	134,664 2/
Sand:						
Industrial sand (glass sand)	thousand tons	740	740	850	505 r/ 2/	574 2/
Construction sand	do.	22,000	22,000	22,000	21,250 r/ 2/	19,420 2/
Sandstone	thousand cubic meters	200	200	200	66 r/ 2/	6 2/
Sulfur: e/						
Elemental, byproduct		8,000	10,000	8,000	4,453 2/	4,450
Sulfuric acid		100,000	591,000	680,000	500,000	500,000
Talc, steatite, soapstone, pyrophyllite		4,125	38,608	41,227	43,627 r/	39,720 2/
Vermiculite		1,659	483	447	447 r/	12,376 2/
MINERAL FUELS AND RELATED MATERIALS						
Coal e/	thousand tons	--	10	200	300	300
Coke e/	do.	1,200	1,200	1,200	1,200	1,200
Gas, natural:						
Gross production	million cubic meters	11,900	15,942	16,800 e/	17,000 e/	16,670
Dry	do.	9,000	12,536	13,183	13,349	13,300
Petroleum:						
Crude	thousand barrels	327,040	335,800	336,500	319,000	316,090 2/
Refinery products:						
Liquefied petroleum gas	do.	4,755	5,325	5,080	6,333	5,090
Gasoline and naphtha	do.	36,900	38,450	40,185	44,065	43,465 2/

See footnotes at end of table.

TABLE 1--Continued
 EGYPT: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1994	1995	1996	1997	1998 e/	
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum--Continued:						
Refinery products--Continued:						
Kerosene and jet fuel	thousand barrels	17,155	15,770	17,255	16,606	15,788 2/
Distillate fuel oil	do.	39,200	43,550	42,298	43,790	45,230 2/
Residual fuel oil	do.	90,080	80,350	85,787	86,100	87,625 2/
Lubricants	do.	1,580	1,645	1,645	1,729	1,820
Asphalt	do.	4,130	4,485	4,181	4,641	5,042 2/
Unspecified	do.	2,250	2,550	2,600 e/	2,400 e/	2,350
Total	do.	198,044	194,120	201,027	205,664	206,410

e/ Estimated. r/ Revised.

1/ Table includes data available through December 1, 1999.

2/ Reported figure.

TABLE 2
EGYPT: STRUCTURE OF THE MINERAL INDUSTRY IN 1998

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aluminum	Aluminium Co. of Egypt (Government, 80%; private interests, 20%.)	Nag Hammadi	230.
Carbon black	Alexandria Carbon Black Co. (Egyptian Holding Co. for the Chemical Industry, 49%; Inco-Bharat, 36%, Grasim Industries, 15%.)	Alexandria	20.
Cement	Al Ameriyah Cement Co.	Ameriyah	2,100.
Do.	Asiut Cement Co.	Assiut	2,600.
Do.	Helwan Portland Cement Co. (Government, 73%; private interests, 27%.)	Helwan El Minya	2,800. 200.
Do.	Egyptian Cement Co. (Orascom Group, 40%; private interests, 40%; Holderbank Financiere Glaris Ltd., 20%)	70 kilometers east of Cairo	1,400.
Do.	Suez Cement Co. (Government, 77%; private interests, 23%)	Ain Sukhna Qattamia Waddi Hagoul	1,700. 1,200. 1,200.
Do.	Alexandria Portland Cement Co. (Government, 77%; private interests, 23%)	El Mex	800.
Do.	National Cement Co. (Government, 77%; private interests, 23%)	El Tabbin Beni Suef	4,000. 1,000.
Fertilizers, nitrogenous	Abu Qir Fertilizer & Chemical Industries Co. (private and public shareholders, 80.9%, Egyptian General Petroleum Corp., 19.1%)	Abu Qir 1 Abu Qir 2 Abu Qir 3	330 (ammonia). 510 (ammonia nitrate). 330 (ammonia). 790 (urea). 390 (ammonia). 580 (urea).
Do.	Société El-Nasr d Engrais et d'Industries Chimiques (Government, 100%)	Suez	146 (ammonia). 450 (nitric acid). 365 (ammonium nitrate).
Do.	do.	Talkha	330 (ammonium nitrate). 570 (ammonia & urea).
Do.	Egyptian Chemical Industries (Government, 100%)	Kima	330 (ammonia). 600 (nitric acid). 800 (ammonium nitrate).
Iron and steel	Egyptian Iron and Steel Co., Hadisob. (Government, 100%)	Helwan steel plant	1,500.
Do.	Alexandria National Iron and Steel Co. (Government, 100%)	El Dikheila plant	1,100.
Natural gas	million cubic meters Egyptian General Petroleum Corp. (EGPC) (Government, 100%)	Abu Madi Badreddin- 3 Abu Qir/Naf Ras Shukheir	3,800. 3,000. 1,900. 1,600.
Do.	do. Grupo Khalda (Repsol, 50%, Apache Oil Co., 40%; Samsung, 10%)	Khalda	24.
Petroleum, crude	million 42-gallon barrels Gulf of Suez Oil Co. (EGPC, 50%; Amoco, 50%)	October, Suez Gulf El Morgan, Suez Gulf	45. 27.
Do.	do. Belayim Petroleum Co. (EGPC, 50%; International Egyptian Oil Co., 50%)	Belayim, Suez Gulf	65.
Do.	do. Suez Oil Company (EGPC, 50%; Deminex, 25%; Repsol, 25%)	Ras Budran, Suez Gulf	15.
Petroleum, pipeline	do. Arab Petroleum Pipeline Co. (Egypt, 50%; Saudi Arabia, 15%; Kuwait, 15%; United Arab Emirates, 15%; Qatar, 5%)	Ain al-Sokhna to Sidi Kir	875.
Petroleum, refined	do. Cairo Petroleum Refining Co. (Government, 100%)	Mostorod Tanta	42. 15.
Do.	do. Alexandria Petroleum Co. (Government, 100%)	Alexandria	42.
Do.	do. El-Nasr Petroleum Refining Co. (Government, 100%)	Suez	36.
Do.	do. Ameriya Petroleum Refining Co. (Government, 100%)	Ameriya	27.
Do.	do. Suez Petroleum Processing Co. (Government, 100%)	Suez	21.
Do.	do. Asyut Petroleum Refining Co. (Government, 100%)	Asyut	18.
Phosphate rock	Egyptian Organization of Industrial and Mining Complexes (Government, 100%)	Abu Tartur	2,200.